

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the present application:

Listing of Claims:

1. (Previously presented) A method for providing improved reliability in an aircraft door flight lock actuator comprising:

storing energy provided to the actuator during a powered locking stroke of the actuator in a mechanical energy storage means;

storing energy provided to the actuator, during a powered locking stroke of the actuator and while the actuator is in a state of powered stall in a locked position, in an electrical energy storage means;

powering the actuator using the energy stored in the mechanical energy storage means to complete an unlocking stroke;

powering the actuator using the energy stored in the electrical energy storage means to complete the unlocking stroke, in the event that the energy stored in the mechanical energy storage means does not successfully power the actuator to complete the unlocking stroke;

controlling a linear velocity of the actuator;
and

controlling a current supplied to the actuator while the actuator is in said state of powered stall.

2. (Original) The method defined in claim 1, wherein storing energy in the mechanical energy storage means comprises deforming a compression coil spring during a powered locking stroke of the actuator.

3. (Original) The method defined in claim 1, wherein storing energy in the electrical energy storage means comprises charging at least one capacitor during a powered locking stroke of the actuator, and during a subsequent powered stall of the actuator.

4. (Previously withdrawn) The method defined in claim 1, wherein storing energy in the electrical energy storage means comprises charging a rechargeable battery during a powered locking stroke of the actuator, and during a subsequent powered stall of the actuator.

5. (Previously presented) The method defined in claim 1, wherein the mechanical energy storage means and the electrical energy storage means are redundant.

6. (Previously Presented) The method defined in claim 1, wherein controlling the linear velocity of the actuator comprises:

sensing a rotational speed of an actuator motor; and

reducing the voltage at a motor's terminals if the rotational speed is higher than a maximum speed;

and wherein controlling the current supplied to the actuator while the actuator is in the state of powered stall comprises:

sensing a current supplied to the motor; and
reducing the voltage at the motor's terminals if the sensed current is higher than a maximum current.

7. (Previously presented) The method defined in claim 6, wherein controlling the linear velocity of the actuator further comprises:

shunting a current generated by the motor into a damper circuit to place an electrical load on the motor if the supplied voltage is substantially zero and the rotational speed is higher than the maximum speed.

8. (Original) The method defined in claim 6, wherein sensing the rotational speed of the motor comprises measuring a frequency of a Hall effect sensor signal.

9. (Previously withdrawn) The method defined in claim 6, wherein sensing the rotational speed of the motor comprises measuring a back electro-motive force generated by the motor.

10. (Previously withdrawn) The method defined in claim 6, wherein reducing the first current comprises reducing a voltage supplied to the motor.

11. (Previously withdrawn) The method defined in claim 6, wherein reducing the first current comprises pulse-width-modulating a power signal supplied to the motor.

12. (Previously Presented) A system for providing improved reliability in an aircraft door flight lock actuator comprising:

means for storing energy provided to the actuator during a powered locking stroke of the actuator in a mechanical energy storage means;

means for storing energy provided to the actuator, during a powered locking stroke of the actuator and while the actuator is in a state of powered stall in a locked position, in an electrical energy storage means;

means for powering the actuator using the energy stored in the mechanical energy storage means to complete an unlocking stroke;

means for powering the actuator using the energy stored in the electrical energy storage means to complete the unlocking stroke, in the event that the energy stored in the mechanical energy storage means does not successfully power the actuator to complete the unlocking stroke; and

means for controlling a linear velocity of the actuator and for controlling a current supplied to the actuator while the actuator is in said state of powered stall.

13. (Previously presented) The system defined in claim 12, wherein the means for storing energy in the mechanical energy storage means comprises means for deforming a compression coil spring during a powered locking stroke of the actuator.

14. (Previously presented) The system defined in claim 12, wherein the means for storing energy in the electrical energy storage means comprises means for charging at least one capacitor during a powered locking stroke of the actuator, and during a subsequent powered stall of the actuator.

15. (Previously withdrawn) The system defined in claim 12, wherein the means for storing energy in the electrical energy storage means comprises means for charging a rechargeable battery during a powered locking stroke of the actuator, and during a subsequent powered stall of the actuator.

16. (Previously presented) The system defined in claim 12, wherein the mechanical energy storage means and the electrical energy storage means are redundant.

17. (Withdrawn) The system defined in claim 12, wherein the means for controlling the linear velocity of the actuator and for controlling the current supplied to the actuator while the actuator is in the state of powered stall comprises means for:

- sensing a rotational speed of an actuator motor;
- reducing the voltage at a motor's terminals if the rotational speed is higher than a maximum speed;
- sensing a current supplied to the motor; and
- reducing the voltage at the motor's terminals if the sensed current is higher than a maximum current.

18. (Withdrawn) The system defined in claim 17, wherein the means for controlling the linear velocity of the actuator comprises means for:

- shunting a current generated by the motor into a damper circuit to place an electrical load on the motor if the supplied voltage is substantially zero and the rotational speed is higher than the maximum speed.

19. (Withdrawn) The system defined in claim 17, wherein the means for sensing the rotational speed of the motor comprises means for measuring a frequency of a Hall effect sensor signal.

20. (Withdrawn) The system defined in claim 17, wherein the means for sensing the rotational speed of the

motor comprises means for measuring a back electro-motive force generated by the motor.

21. (Withdrawn) The system defined in claim 17, wherein the means for reducing the first current comprises means for reducing a voltage supplied to the motor.

22. (Withdrawn) The system defined in claim 17, wherein the means for reducing the first current comprises means for pulse-width-modulating a power signal supplied to the motor.